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ABSTRACT

As an action research project, a program was developed to improve test-taking skills to increase standardized test scores. The targeted population was high school juniors in a small Midwestern community in west central Illinois. The problem of low standardized test achievement was documented through data that revealed that students fell below the state average in every category. The analysis of probable cause data revealed that students had not been prepared for standardized testing. Faculty reported that they believed in the importance of the tests, but did not take class time to coach for them. Reviews of statistics and research revealed that causes are rooted at home in economics and at school in instruction. A review of solution strategies suggested by knowledgeable others, combined with an analysis of problem setting, resulted in the selection of two major categories of intervention: encouraging students to become motivated to do well on standardized tests and designing and teaching test taking strategies to students. Postintervention data indicated that test-taking strategies could be taught. Based on the analysis of the data, the students showed an improvement on tracking during tests. With good teaching and the proper approach to tests, students' scores increased. Teachers need to learn to teach such skills as: tracking, vocabulary clues, and reviewing answers to raise test scores. The research showed that with some effort this could be achieved. Four appendixes contain supplemental information. (Contains 2 tables, 4 figures, and 29 references.) (SLD)

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USING TEST-TAKING SKILLS TO IMPROVE STUDENTS' STANDARDIZED TEST SCORES

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An Action Research Project Submitted to the Graduate Faculty of the

School of Education in Partial Fulfillment of the

Requirements for the Degree of Master of Arts in Teaching and Leadership

Saint Xavier University & SkyLight

Field-Based Master's Program

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ABSTRACT

Title: USING TEST-TAKING SKILLS TO IMPROVE STUDENTS' STANDARDIZED TEST SCORES

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Date: May 2003

This report describes a program for improving test-taking skills in order to increase standardized test scores. The targeted population consisted of high school juniors in a small midwestern community, located in west central Illinois. The problem of low standardized test achievement was documented through data that revealed students fell below the state average in every category.

Analysis of probable cause data demonstrated that students had not been prepared for standardized testing. Faculty reported that they believed in the importance of the tests, but did not take class time to coach them. Reviews of statistics and research revealed that causes are rooted both at home in economics, and at school in instruction.

A review of solution strategies suggested by knowledgeable others, combined with an analysis of problem setting, resulted in the selection of two major categories of intervention: encouraging students to become motivated to do well on standardized tests; and designing and teaching test taking strategies to students.

Post intervention data indicated that test-taking strategies could be taught. Based on the analysis of the data, the students showed an improvement on tracking during tests. With good teaching and the proper approach to tests, students' scores may increase. Teachers need to learn to teach such skills as: tracking, vocabulary clues, and reviewing answers to raise test scores. The research showed that with some effort this could be achieved.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

The students in the targeted high school in a small midwestern community exhibited a lack of test-taking skills that interfered with their academic performance on required assessments. Evidence of the existence of the problem included teacher surveys that indicated the amount of preparation given before tests, teacher observation that indicated the frustration level and time on task of students during the tests, and school report cards that measured how the students achieved on state assessments.

Immediate Problem Context

The Works Progress Administration (WPA) constructed the targeted school during the Great Depression. There was an addition in the 1950s that included a large band/orchestra room, small practice rooms, storage and dressing rooms; a counseling complex housing a reception area, seven offices and a large conference room, and a two-story section of multi-purpose classrooms. In the 1960s, a fieldhouse, a swimming pool, dressing rooms, and more classrooms were added to the original building. During the five years prior to the study, the entire building was renovated and equipped with climate control and other amenities.

At the time of the study, the school had 90 classrooms, a fieldhouse that could seat about 5,500 spectators at a basketball game, a stadium that seated 10,000-12,000, and soccer practice fields and a baseball complex that were added in the late 1990s. The cafeteria served 500-600 students at one time, the main auditorium seated about 1,200, and a small auditorium seated about 200 people.

The high school was organized by departments. All of the administrators had been in the school for three years or less. The counseling team was reorganized the year of the study. One counselor had been at the school for many years, one was new that year, one had not completed her certification, and two retired counselors shared the fourth position. Students were counseled by whichever counselor was available when the student signed in. The new organization of the counseling department made it difficult for teachers to refer students for behavioral problems.

The enrollment of the school was about 1,600 students in grades 9 through 12. The racial/ethnic background of the student body was about 65% White, 29% Black, and 6% other minorities. Nearly 41% of the students received public aid.

The Illinois School Report Card indicated that the attendance rate was 91.1%, and the mobility rate was 31.1%, with truancy reported to be 1.1%, or about half the state average. The dropout rate was 5.2%, slightly under the state average of 5.7%.

The Illinois School Report Card also reported that the average class size was 19.2; however, that number included special education classes.

Ninety-one percent of the teachers were White, and had been teaching an average of 16 years. Nearly 48% had at least a master's degree. Just under half of the teachers were female.

The curriculum of the school was college preparatory, with few vocational classes offered for students not planning on post secondary education. The Special Education Department was the largest department in the school. Students attended six 53-minute classes every day, while teachers taught five classes one semester and six classes the other semester.

The school won numerous regional and state championships in athletics. The speech team, choirs, band, and orchestra ranked in the top of regional and state competitions. The school produced excellent musicals, plays, and variety shows. Ten years ago, the school could boast of having produced more National Merit Scholars than the rest of the regional schools put together, but several years had passed since they had a National Merit Scholar.

Administrators were concerned about the recent declining graduation rate, the increasing number of academic failures, and poor performance of students on standardized tests.

The high school had transferred much of its vocational program to a neighboring school district. The distance made transportation extremely difficult and all but eliminated the number of students participating. The old vocational education building was transformed into a weight room and conditioning facility for athletics.

Another concern of the school was safety. Six years before the study, there was a gang rape during school hours. However, little accommodation was made during the extensive renovations for securing highly used areas from unused areas, especially after school hours. Fights had become common during passing times, before and after school, and discipline was not consistent. The administrators discussed improving student

attendance. A class called Fresh Start for "at risk" students, was implemented the year of the study.

Community Context of the Problem

The mission of the district was simply stated: Education. This mission was further defined and directed by the vision of Excellence Every Day. The educational services of the district were delivered through 12 elementary schools, 2 junior high schools, a high school, an alternative junior/senior high school, a special education preschool, and several pre-school programs. All district buildings were climate-controlled for optimum environments for summer school sessions and year-round classes. Each classroom within the district had access to the Internet, and the district developed a web-based information management system making access to information available from every teacher's desk.

The enrollment was 6,500 students. The diverse student population consisted of 57.5% White, 34.6% Black, 7.1% Hispanic, .5% Asian, .2% Native American. The district also had 53.6% low income, .7% limited English, 2.5% chronic truancy, and a 28.1% mobility rate.

The district employed nearly 1,000 people; 44% of the district teachers had master's degrees or higher and averaged 17.2 years of experience. Transportation was provided through a private company, and the district operated its own food service program.

The school district had a significant and impressive mentoring program. This program helped the students get academic help and also allowed them to bond with adults. The district worked closely with community agencies to provide care and programming for students who were not receiving adequate supervision before and after

school, during school intersession, and the summer. Efforts were underway to enrich those programs academically to assist students in need of additional help with their schoolwork. The district had a State Geography Bee Champion and an active Minority Teacher Incentive Program that involved 250 students. The district had an "Excellent" rating by the Air Force during the annual review of the ROTC program. The high school had 43 athletes who earned the IHSA Scholastic Achievement Award. The district was the first area school district to move to a year-round calendar.

The district had four schools put on the state's academic warning list. The district also had a significant change in the administration office personnel, which caused the district to lack curriculum direction. Another problem area for the district was the loss of tax revenue. The city was land locked which limited opportunities for new businesses or residential growth. The increase of factory layoffs put an extra financial burden on the city. Those factors increased the percentage of low-income residents in the district.

The city was located midway between two large Midwestern cities. Four other similar communities and several smaller towns combined for a total population of 359,800, in the metropolitan area. The city had a population of 40,000 people with a median age of 34.3. At the time of this study the unemployment rate was 6.4% with a per capita income of $25,052. The population of the city was 80.7% White, 17.2% Black, 3.7% Hispanic, 2.1 other minorities.

The two major employers were farm implement manufacturers and the federal government. The community had a large motor freight service as well as major interstate highways going through and intertwining around the city. The city was served locally by an international airport and had a river as a boundary, which had significant barge traffic.

The city was home to a large full service hospital, with two other hospitals in neighboring communities. The community had at one time many different kinds of farm implement manufacturers; however only two companies were operating at the time of this study. The future of one of the two was limited by the impending closing of a plant. The nation's largest manufacturer of aluminum was located in the metropolitan area and was the fourth largest employer.

The average price for a home in the community was $76,000. The urban area was ranked as the second most affordable housing market in the nation.

The city had three library buildings, one located downtown, and two branches situated in residential areas. There were three trade and technical schools, two community colleges, two four-year colleges, three universities, one graduate center, and one college of chiropractic.

The community area had 143 parks and 2 zoos, and many public and private swimming pools. The community had 21 public golf courses, 7 private golf courses, and a professional golf course. The community used and supported seven YMCA/YWCA's.

The metropolitan area was at a critical time in its growth. Industry and related businesses were closing or laying off employees. The trickle down effect of the farm implement manufacturing slowdown affected many of the subsidiary businesses. The state had seen record revenue shortages, which reduced monies for the school districts. This created a burden on the cities, which were already experiencing shortfalls in funding. At the time of this study the cities were laying-off city employees to save money. The school district forewarned its employees to anticipate lay-offs and increases in class sizes.

Increased pressure from outside sources favoring other options for public schools students, and growing teacher shortages posed a formidable group of challenges for the future of the district. Expectations for improvement of student learning from society at large underscored the urgency to meet the challenges that faced the district.

National Context of the Problem

The national demand for standardized tests has increased tremendously in recent years, putting pressure on schools and students to increase their scores. This pressure has necessitated new methods of raising test scores and new formats for testing, using different test-taking approaches. Some authorities have suggested eliminating standardized tests.

Standardized tests may not be the best source for predicting academic success (Sacks, 1997). Socioeconomic status of students and the educational levels of their parents may be related to students' standardized test scores. The use of test scores to predict academic success among women, students with disabilities, or minorities are often questioned. Sacks further reported that standardized test scores reflect surface or rote learning rather than "deep" learning, and he concluded that standardized tests tend to serve the nation's elite by "gate-keeping" the aristocracy (p 31).

With the recent upsurge of student assessment, Worthen (1993) presented the pros and cons of alternative assessment as opposed to the traditional multiple-choice standardized tests. Alternative assessment may be more expensive to develop and administer; however, Worthen questioned the feasibility of giving standardized assessment tests rather than using the more expensive alternative assessment process. He emphasized that scoring rubrics may be too challenging, and there is a lack of

standardization on alternative assessment tests. Worthen concluded that little would be gained by switching from multiple choice tests to alternative assessment tests; yet the credibility of high stakes testing in general remains a matter of speculation.

Standardized tests may not assess the true academic ability of students. High stakes testing relies on rewards and punishments, and possibly creates a system that is unfair or even destructive to learning (Kohn, 2000b). Kohn stated that teaching to the test has become an emphasized part of education today. The purpose of standardized tests is to rank one student against all others. Scoring percentiles from such tests will always have half of the test takers falling below the median. These scores should not be used to determine whether a school is failing, but rather to define the median. Kohn emphasized that every hour spent preparing students to succeed on such tests is an hour not spent helping them to become critical, creative, curious thinkers. Kohn concluded that the pressure is placed on the teacher to challenge the practice of using standardized tests and to attempt to minimize the destructive effects of high-stakes testing.

Test anxiety is a common form of anxiety among school children, and often affects students at all academic and intellectual levels. In the past 30 years test anxiety has increased among third through sixth grade children (Beidel, Turner, & Taylor-Fereira, 1999). The reasons for such increases in test anxiety may be related to parental or teacher pressure to achieve, increased expectations regarding the complexity of work to be mastered at earlier developmental stages, or possibly the increased emphasis placed on young children to perform above the national average when standardized testing occurs.

"Testbusters" is a pilot program designed specifically for elementary and middle school children in grades four through seven that teaches effective student school habits,

study skills, and test-taking strategies, and includes a behavioral contract to ensure consistent study behavior (Beidel et al., 1999). Overall, students using this system improved their grades in most of the subjects, and decreased the level of their anxiety. Intervention at the elementary school level may have been therapeutic, thus preventing test anxiety from further impairing the social, emotional, and academic development of young children.

The national demand for standardized tests has increased dramatically. There are questions about the validity of these assessments. One reason that standardized tests may not be the best source for predicting academic success was that test anxiety lowered test scores. Studies showed that alternative assessments would not be adopted because of the expenses involved and the challenges of scoring them. The demand for standardized tests does not consider the effect that socio-economic status has on test scores, nor does it accommodate student habits practiced on standardized tests. Apparently, there is a need to teach study skills and test-taking strategies to students to prepare them for whatever testing is mandated.

CHAPTER 2

PROBLEM DOCUMENTATION

Students in the targeted high school exhibited poor test-taking skills resulting in standardized test scores below those of the state in every subject area. The teacher surveys indicated little or no preparation given to students prior to testing. Teacher observation gave evidence of student frustration and failure to stay on task.

Problem Evidence

The School Report Card issued by the state directed the targeted school to include in the School Improvement Plan the goal of an increase in the number of students scoring at the "meets" or "exceeds" performance levels on the standardized tests as reported in the Prairie State Achievement Examination (PSAE) scores. This was due to the fact that of the 296 students tested 50% met or exceeded the reading standards as compared to the state average of 58%. Only 45% of the students met or exceeded the math standards as compared to 54% at the state level.

The American College Testing (ACT) results of the target students were below state and national levels. The ACT composite for the school was 21.5 as compared to the state average score of 21.7. The indicated scores were the result of all 11th grade students being required to take the ACT.

A local newspaper reported the school board's warning to the targeted high school regarding the PSAE scores. The warning was "not meant to punish schools, but to ensure they get the help needed to do better." One in five Illinois schools were in trouble and almost all of them had poverty rates higher than the state average ("One in five," 2001).

A survey was given to teachers from the targeted high school regarding standardized testing strategies. The results showed that 70% agreed that test-taking strategies were important; yet only about 40% of the teachers indicated that they guided students in any test-taking strategies. However, 80% believed the test scores were affected by the classroom environment and the researchers observed that during testing the test room environment was controlled and quiet. Thus indicating teachers do believe that classroom environment affects test scores. (See Figures 1 and 2.)

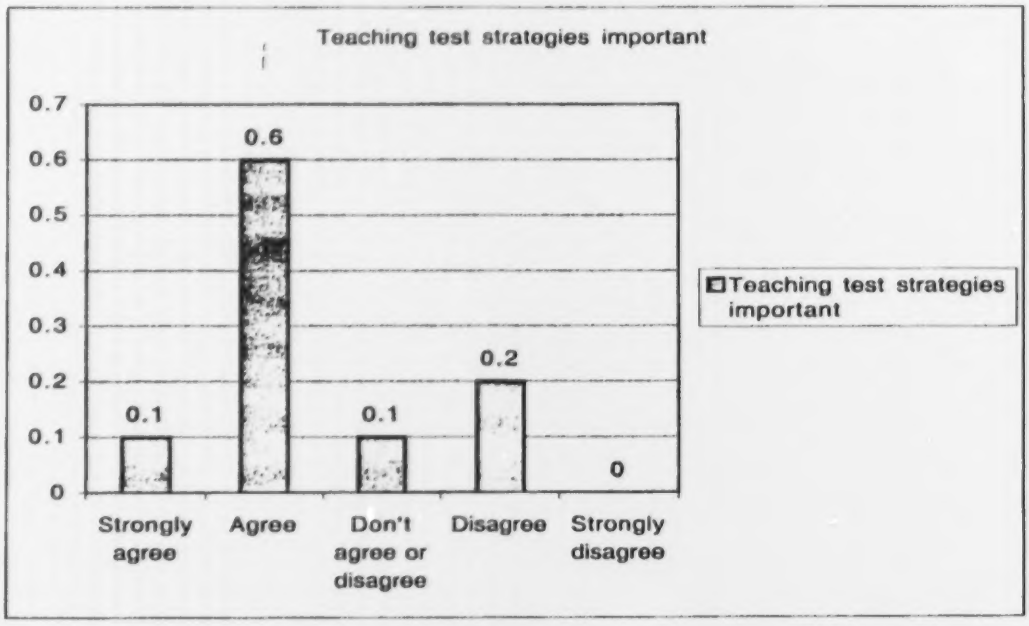

Figure 1. Frequency of responses of teachers on a survey regarding the importance of teaching test strategies.

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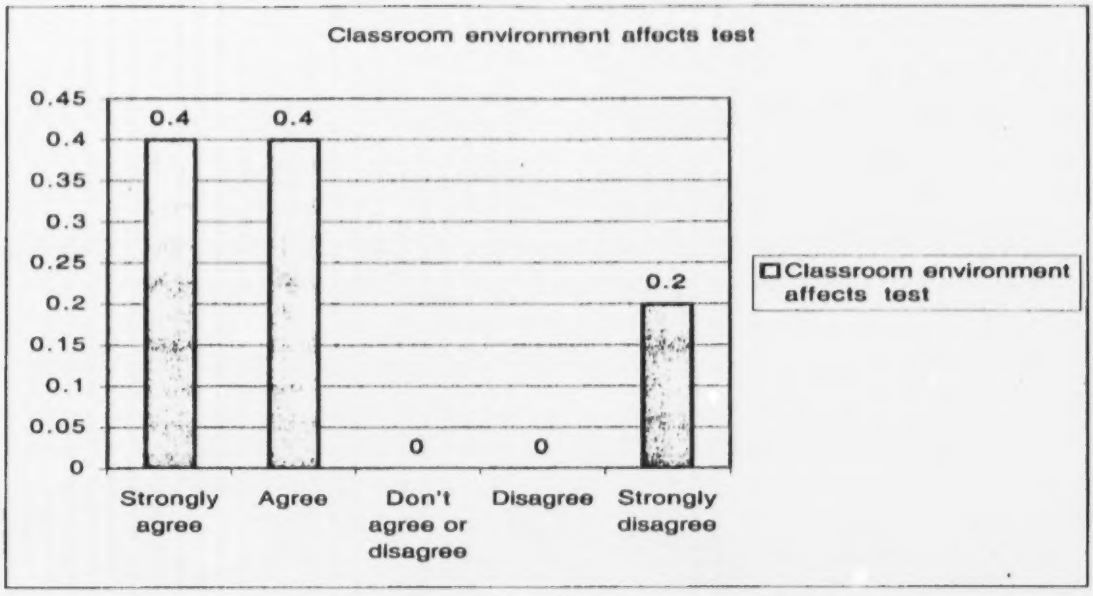

Figure 2. Frequency of responses on the teacher survey on whether classroom environment affects test results.

Further, 90% admitted they made students aware that eraser smudges caused false readings of electronically graded answers; Encouraging students to consciously erase completely should reduce the number of wrong answers.

However, by not demonstrating a "legal arm stretch" to their students, teachers were not helping their students maintain focus during the four hours of testing. Lack of focus and mental fatigue were issues that apparently had not been brought to the attention of teachers as being important during test taking.

Teachers stated that 70% of the time they did not teach students to fill in a bubble on their answer sheets. However researchers believed that the teachers did not instruct students to properly fill in the bubbles on answer sheets because they felt they had been taught this in previous years of schooling.

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Also 70% of the teachers did not prepare students to track answers from their tests to their answer sheets. By using the test booklet to isolate the answer lines on the Scantron sheet, students would track more easily, thus creating less confusion for the students.

Again, 70% of the teachers failed to remind students to eat a nutritious breakfast before taking a standardized test. The targeted school provides free breakfast for more than 50% of the students. Perhaps teachers assumed that students were being fed a nutritious breakfast before testing.

The teachers in the targeted school agreed that a good nights sleep was important before taking a standardized test. However, only 70% of the teachers advised their students to "…get a good night's sleep" before taking a test. (See Table 1.)

Table 1

Result of Teacher Survey Indicating Teaching of Test-Taking Strategies

Strategy Taught	Yes	No
Erasures	9	1
Legal Stretches	9	1
Bubbling Scantrons	3	7
Tracking	4	6
Nutritious Breakfast	3	7
Proper Amount of Sleep	7	3

n= 10

In conclusion, the teachers in the sample believed that standardized test strategies were important, although few teachers did much to prepare their students for these tests. Out of the six strategies considered by the researchers, only two were pursued by the teachers before the testing of students took place. (See Figure 3).

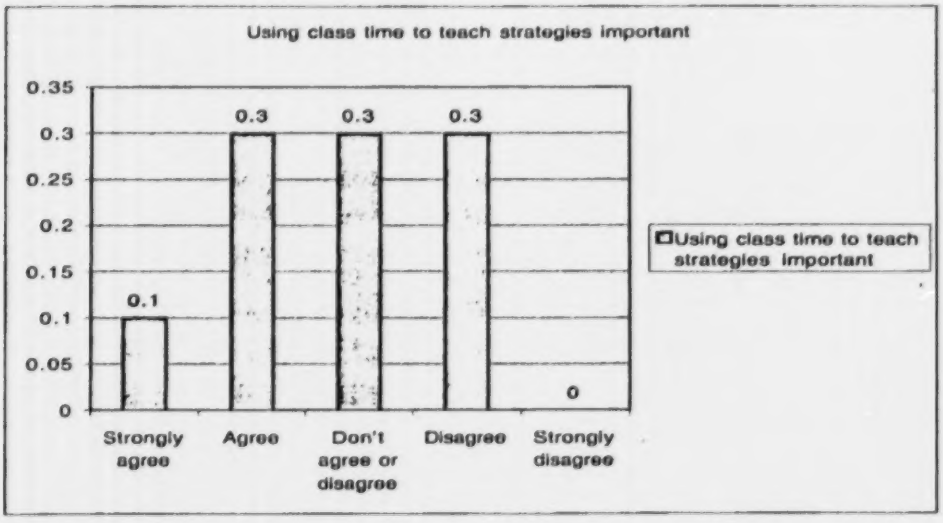

Figure 3. Frequency of response on teacher survey on whether teachers used class time to teach test strategies.

Probable Causes

Taylor and Walton (2001) reported that sometimes teacher's attitudes impact student's test scores. When teachers communicate negative attitudes toward standardized tests, student's scores fall. Too often schools do not properly prepare teachers for administering standardized tests, often resulting in an attitude of indifference which can be passed along to the students.

Many students suffer from test anxiety, which is an extreme fear of doing poorly on any type of test and which can affect school children of all ages and intellectual levels. As stated in Beidel et al. (1999), test anxiety often has adverse effects on academic

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achievement. Classroom situations where students have test anxiety or feel the need to compete against other students may cause students to be less motivated or perform poorly on their tests (Hancock, 2001). Motivation and attitude of teachers and students affect test scores, but neither of these should be used as an excuse for poor achievement.

The National Association of Homebuilders reported in the year 2002 the city in which the targeted high school students lived ranked number two nationally in affordable housing. The median price of a home was $76,000. Only one other place in the country had homes valued lower than the targeted community. The conclusion must be that the value of the homes in the targeted community indicated a depressed economy. The median income was reported to be $52,700. This was attributed to the recent loss of manufacturing jobs in the area (Treiber, 2002).

Socio-economic problems, family backgrounds, and ethnicity may be major contributors to a students' low achievement. According to Popham (1999), the socio-economic setting of a school is highly correlated with standardized test scores. The targeted city had 53.6% of the student population falling into the low-income bracket and this was thought to be one of the major causes of low standardized test scores. Other causes of low achievement, as stated by Lagerstam (2002), may be single parent families or education levels of parents.

Many students from minority groups or low-income households tend to score poorly on standardized tests. Within the last year local newspapers quoted top administrators stating that it is more difficult to educate the minority and low-income students; however the administrator in the targeted district stated that the district is

developing methods to increase achievement of these groups. (Lemmon & Lagerstam, 2001).

Popham (1999) reported that tests often focus on knowledge and skills learned outside of school in the socio-economic setting. Students from low-income homes are often exposed to fewer experiences beyond their neighborhoods.

The researchers concluded that teacher and classroom attitudes, student motivation, income level, ethnicity, and family background were primary determiners of student achievement. The research indicated that the targeted community suffered from a combination of these problems, and the targeted district was taking steps to correct the resulting educational conditions.

CHAPTER 3

THE SOLUTION STRATEGY

Standardized tests provide opportunities for students to take positive control of their futures. Students who are unprepared for these tests often do not reach their potential. Low test scores often limit possibilities for success in future education.

Literature Review

The socio-economic class and the poverty level of the students and their families often account for the causes of low standardized test scores. Sacks (1997) suggested that scores for standardized tests are highly related to economic class and often penalize women and minority students. Women and minority students tested low on standardized tests but earned better grades in their academic work than their standardized test scores predicted. The researchers found that there was a positive relationship between parental incomes and test scores, as well as a relationship between parental education and student test scores. Sacks believed that the standardized tests are sometimes used as a means of social control, predominately serving the nation's elite.

Popham (1999) wrote that the main reason students' socio-economic status was related to standardized test scores is that many of the items on the test focus on knowledge and skills that have to be learned outside of school and are more likely to be

learned in affluent settings. Children from middle and upper income families had the benefit of expanded cultural experiences, which were carried over, into the classroom. He continued to state that he believed that "some kids were luckier at gene-pool time" (p.5). Students who come from a richer gene pool are going to be more successful in school. Unfortunately children can not pick their parents.

Kohn (2001) stated that economic status accounts for some of the variance in test scores. Kohn wrote that there are four major questions that account for the scores. First, how many households have both parents living in the home? Secondly, what is the educational background of the parents? Third, what is the type of community in which the student lived? Lastly, what is the poverty level of the student? Kohn (2000a) also believed that tests are biased because more of the questions deal with academic skills, which may be possessed more by privileged children. The researchers familiar with low-income schools concluded that schools with students at risk of failure in the district are heavily populated with minorities. Kohn (2000a) believed that standardized tests are just the means "to play a game," and minority children usually cannot win this game. Dunne (2000) reported that teacher unions, student groups, and parent organizations disagree with standardized testing because large numbers of low income or minority students score low on the tests. Goodwin (2000) stated that at-risk students might not perform well on standardized tests due to the failure to recognize the importance of scoring well on such tests.

Popham (1999) believed that standardized tests should not be used to evaluate districts, schools, or teachers because there is a mismatch between what is being taught

and what is being tested. He did, however, believe that schools need to be held accountable with some type of valid assessment.

Researchers reported that low test scores resulted in an increased number of assessments, which reduced instructional time. Kohn (2000a) concluded that teachers spend too much time teaching to the test and not teaching critical thinking skills. Kohn explained that standardized tests are used to measure short-term memory, not deep learning, and that a premium is being put on speed, rather than thoughtfulness or thoroughness.

Russell (2000) reported that standardized tests are used in most states to assess student's achievement and will soon be used in 32 states to determine whether the students receive a diploma. Legislators demand educational accountability, and the pressure from high stakes testing often results in measurement-driven instruction (Worthen, 1993). Worthen also claimed that most of the criticism is not focused on standardized tests but how the results of those tests have been used.

Holloway (2001) reported that testing is an important tool in educational reform, but educators need to use the tests carefully. Holloway further reported that several professional organizations caution users against misinterpreting the test results. These misinterpretations can result in schools coming under financial hardships, as well as the students being over-tested. Test results need to show the results of what the tests were designed to measure.

Kohn (2000b) stated that no matter how many students take standardized tests, half would always fall below the median. Therefore, it will always appear that some students are doing poorly on the tests. Russell (2000) claimed that scores on standardized

tests are deceptive; for example, 3rd grade students must increase their scores by 7 points to move from the 10th to the 20th percentile, but only need to increase 4 points to move from the 50th to the 60th percentile. VanHorn (1997) said that having some extremely low-test scores in the class would result in having a drastically lower class mean. He pointed out the need to eliminate the extremely low scores and increase the high scores to raise the class average.

Standardized tests are easy to administer, can be scored quickly, and are relatively cheap to use for the school districts, and are profitable to the corporations that publish and score them (Kohn, 2000b). Sacks (1997) agreed that the educational test producers are big businesses, and he contended that the making, selling, and scoring of standardized tests is profitable for those businesses.

The push by legislature and the public to make the schools accountable for what is being taught has led to more stress and stricter curriculum guidelines for school districts. There is a need for strategies to help the students perform better on the required tests.

Geocaris and Ross (1999) reported that students think they prefer multiple-choice tests because this type of test allows for easier guessing. To prepare for standardized tests, Chaleff and Toranzo (2000) suggested that students should use the practice booklet provided, learn to pace themselves by setting time limits while taking practice tests, and know what equipment is allowed and required for the actual test. He advised students of the need to read the questions and all possible answers before eliminating the obviously wrong ones. If students are still not sure of the answer, Chaleff and Toranzo advised looking back into the text. He pointed out that students often believe they cannot go back to the text once they have read it. Priestly (2000) suggested that when students were

unsure of an answer, they should skip that answer and mark the test booklet to return to the question later. Calkins, Montgomery, and Santman (1999) suggested that students stretch before reviewing the test. When taking an essay test, Priestly (2000) suggested that students should jot notes in the margins and organize their thoughts before beginning to write.

There is much work to be done well before test day. McClaskey (2001) and Simmons (1998) recommended that working with practice tests, which display the actual formats of the tests, was helpful to students. McClaskey added that teachers needed to "embrace" the test weeks in advance by motivating their students and teaching thinking skills for ten to fifteen minutes each period. Simmons added that students need to know why they were taking the tests and how the tests would be scored. McCown and Runnebaum (2001) mentioned a school that counted the standardized test scores as test grades in the students' math classes, thus increasing the vested interest of the students in the standardized tests.

VanHorn (1997) stated that standardized tests should never be administered on Monday or Friday nor should they be given right after lunch. He suggested that tests should never be given on the day of a major event or athletic activity. It was evident to the researcher that student behavior was adversely affected by the school's environment during the week of homecoming.

Noted researchers developed strategies for students who were about to take standardized tests. Chaleff and Toranzo (2000) emphasized students must learn how to track their answers by using the answer sheet as a guide to focus on individual questions. VanHorn (1997) and Simmons (1998) stated that students also needed to be taught to

correctly fill in the bubbles on the answer sheets. Gray (1999) suggested the use of computer scored answer forms for all tests rather than just once a year for the standardized test. Priestly (2000) stressed reading all directions carefully before beginning the test.

The experts stressed the importance of vocabulary in all standardized tests. Priestly (2000) said students needed to look for key words as they read. Calkins, Montgomery, and Santman (1999) encouraged teachers to emphasize misleading word patterns and to underline key words that might be used in the questions and might help students to relate unknown words to daily life. McClaskey (2001) stressed teaching vocabulary through structured and etymological analysis. Chaleff and Toranzo (2000) stated similarly spelled words such as "soup" and "soap" can mislead children. He also cited that "stairs" and "ladder," words with similar meanings, could fool students if they were not careful. He encouraged teachers to instruct children to use the "cloze" format in preparing them for standardized tests. He warned that questions that ask for "all of the above except" or "which is not" can be very confusing if not practiced in advance. He suggested that students be taught to write "true" and "false" beside the answer choices.

Helping students succeed requires the cooperation of both the school and the community. Gray (1999) stressed the need for commitment by teachers to provide emotional and academic support to students who take standardized tests. Goodwin (2000) stated that schools must commit to smaller class sizes and develop activities to increase parental involvement. Simmons (1998) and Goodwin (2000) suggested that schools have an obligation to provide as much advance preparation as possible for students before the standardized tests. VanHorn (1997) proposed that schools have the

responsibility of motivating both teachers and students. Taylor and Walton (2001) reported that teachers' nonverbal messages affected test scores and suggested that positive attitude workshops for teachers be established.

There is much that can be done to improve standardized tests scores. McCown and Runnebaum (2001) reported that comfortable seating was essential to successful test results. McColskey and McMunn (2000) suggested "zero tolerance" for ill-behaved students during testing. Crist and Shafer (2001) proposed that orange juice and water be provided during morning testing. King (2000) encouraged students to eat a good breakfast and wear comfortable clothes. He suggested providing chewing gum, lemon drops, or banana muffins the morning of the test. Crist and Shafer (2001) encouraged students to practice cross lateral stretches, and listen to Mozart on the public address system on the day of testing.

McCown and Runnebaum (2001) described a school that translated the tests and answers for the ESL students, reassigned teachers strategically when test results were poor, realigned the curriculum to meet the demands of the tests, and required study skills classes for all freshmen. King (2000) referred to a school that celebrated the tests by decorating the halls, doors, and cafeteria; the students wrote slogans, cheers, mottos, raps, jingles, and rhymes to help create a supportive environment for students who would be taking the tests. Teachers celebrated the tests by writing encouraging notes for test success to students, and the notes were opened during transition time on the day of the tests. McColskey and McMunn (2000) described a school that held slogan and poster contests and encouraged teachers to have conferences with at-risk students. This school also created commitment contracts for students taking standardized tests. McColskey and

McMunn reported that the school provided professional development workshops for teachers, which suggested that grades be given to students on all practice tests to reinforce doing well on the official tests.

Since standardized tests were designed to measure the academic potential and achievement of youth, they have a powerful impact on young lives. The plan presented for this action research project was devised with the intention of empowering students to emerge with a strong foundation for their futures.

In the past the targeted school prepared for standardized tests by distributing test booklets and answer sheets to the teachers the day before the tests and assigning approximately 15 students and 2 teachers to each classroom. The only attempt to motivate students came with an announcement that there would be pizza after the final test for all students who showed up both days. There was no incentive for teachers to motivate students either in advance of the tests or on the days of the tests.

Two weeks before the test dates, the American History teachers were directed to have their students complete the information required on the answer booklets during class. This process took most students two class periods. Also, at that time information booklets with practice tests were distributed to every student scheduled to take the tests. Students were instructed to take them home for review if they wanted to prepare.
The researchers planned to develop and implement a weekly schedule of strategies. These strategies included physical and mental approaches to test taking.

Project Objectives and Processes

Taking into account the many strategies available from which to design an effective plan of action to promote change among eleventh grade students preparing to

take the PSAE, members of this research team concluded that their approach would encompass a combination of varied strategies. The teacher would instruct students in each of the following activities: specific test-taking skills and strategies, and motivating students to do well on the standardized tests.

> As a result of increased instruction on test-taking skills and implementation of strategies to increase motivation during the period of August 2002 through December 2002, the 11th grade students from the targeted school will improve their scores on standardized tests as measured by the PSAE practice exam and teacher observations.

Processes to achieve this objective are:

1. Establish a schedule of testing, instruction, and teacher observation dates.
2. Design motivational tools and teach test-taking strategies to students.
3. Administer assessment instruments to measure changes in student scores.

Project Action Plan

The schedule of the action plan covers the time frame that begins with August 6 as week one (since this is the first day with students) and ends on December 13 with week sixteen. Each week will include a new strategy being taught. That strategy will be mentioned daily for a brief period of time while involving the activities listed below. The action plan follows:

Week 1 Getting to know each other

A. Students will take pretest PSAE without explanation.

B. Parent and student consent slips go home

C. Baseline teacher observation checklist

Week 2 Explain purpose of standardized test

A. Discussion of future goals

B. Students link standardized tests to their goals

Week 3 Following written directions

A. Students will complete a fun follow the direction activity

B. Discussion on importance of reading directions correctly

C. Students will develop their own follow the directions activity

Week 4 Test preparation strategies

A. Students will review tracking questions to answers on scantron forms

B. Students will discuss the correct way to fill in bubble and erase mistakes

C. Teacher will complete 2nd observation checklist during class test

Week 5 Vocabulary clues and tricks

A. Students will learn how to break down parts of unknown words

B. Students will break apart pneumonoultramicroscopicsilicovolcanoconiosis

C. Teacher will encourage students to beware of misleading words that might distract them from the meaning

Week 6 How to choose correct answers

A. Students will work in groups marking key words in a text

B. Teacher will make a list of key rules to use in finding the correct answer. For example: looking back into the text to find answers

C. Group practice narrowing answer choices down

Week 7 How to answer questions using key words

A. Students and teachers will locate key words in test questions

B. Discuss what clues students can get from the questions

C. Teacher will perform 3rd observation checklist during class test

Week 8 Physical Exercises

A. Model a legal stretch that can be done from seat while taking test

B. Demonstrate the best way to sit in a chair for comfort and oxygen

C. Discuss what type of clothes would be the best to wear on test days

Week 9 "Not" questions

A. Practice doing "Which is not" questions

B. Practice doing "All of the above except" questions

C. Practice doing True or False questions

Week 10 Checking answers

A. Model how to mark questionable answers and recheck

B. Demonstrate how to check answers when done with tests

C. Teacher will complete 4th observation checklist during test

Week 11 Pacing and time management

A. Practice one part timed tests

B. Practice taking more than one part timed test, allowing only so much time for each part of the test

C. Discuss other ways to "find" extra time while taking a timed test

Week 12 Visualization Activities

A. Teach how to deep breathe and relax

B. Demonstrate how to visualize doing well on tests

C. Students will practice visualizing themselves doing well on a test

Week 13 Brain gym

A. Listen to Mozart while reviewing a study guide for a test

B. In teams write raps or jingles about being successful on the test

C. While taking a practice test chew peppermint gum

Week 14 Challenge the result

A. Teacher will offer personal challenge to students

B. Pair up and challenge your partner to do well on something

C. Discuss what it takes to make you want to win a challenge

Week 15 Motivation

A. Discuss why the students take the tests and how the tests would be scored

B. Students will role-play why it is important to do well on the tests

C. Teacher will distribute motivational phrases throughout the week

Week 16 Standardized Testing First Aid

A. Review all the strategies learned over the 16 weeks

B. Hand out first aid kit and discuss what the items stand for

C. Teacher will give post PSAE and complete post observation checklist

Methods of Assessment

In order to assess the effects of the intervention, practice standardized tests requiring the use of the testing strategies will be given. In addition, observation checklists of the students while taking tests will be kept throughout the intervention period. The observations and the improvement in test scores will give insight into the changes in student attitudes toward taking standardized tests.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The objective of this project was to increase students' scores on standardized tests. The implementation of the teaching of test taking strategies was selected to effect the desired changes. The necessity for these changes was evidenced by low scores in PSAE and ACT tests, as well as teacher surveys and researcher's observation.

The teaching of test taking strategies and the reduction of test anxiety were employed as instructional techniques to increase standardized test scores. Improved test-taking skills were taught directly to the students during class time. Original plans called for the presentation of a new test-taking strategy by the teacher each week. The skills chosen for this work included: bubbling, erasing, choosing correct answers, breaking down unknown words, practicing posture and stretches, tracking, following directions, practicing negative questions, and challenging and motivating students to perform well on standardized tests.

Prior to the intervention, standardized test scores were consistently below the state averages. Also, teacher surveys indicated little or no attention was given to test-taking strategies preceding tests. (See Appendix A.) Finally, teacher observations evidenced student frustration and failure to stay on task.

In order to assess the effects of test-taking strategies taught in the classroom, a pretest and a posttest were administered, and four teacher observations were conducted. The pretest and posttest scores were compared and student test-taking behavior was evaluated during four teacher observations spaced throughout the sixteen-week project.

The action plan dealt with three junior American History classes in the targeted high school. American History classes were selected because all juniors in the state were required to take the PSAE and ACT tests. The first week in the plan was to administer the sample PSAE as a pretest with no explanation given to the students regarding the importance or the objective of the pretest. During the pretest the teacher recorded on a checklist erasures, test preparedness, and tracking. (See Appendix B.) The second week involved the teaching of properly filling out Scantron forms. These skills were taught by demonstrating how to fill in the bubbles on the Scantron sheet. The teacher explained possible errors made by the Scantron machine in grading answers that were improperly filled in or incompletely erased.

In week three the teacher explained the purpose and importance of standardized testing. The procedures on test taking days were explained including a description of test-taking room assignments and the daily schedule. The teacher explained how results would affect students and be reported to them. The fourth week brought instruction in choosing correct answers. The teacher demonstrated eliminating one or two incorrect answers on multiple-choice questions. Students were also instructed to monitor their time and in the last minute of testing to mark "C" on all unanswered questions.

The fifth week a second teacher observation of erasures, preparedness, and tracking was made. After giving and grading the test, teacher and students reviewed their

answers and possible ways to improve their test scores. In the sixth week the teacher put "PHEUMONOULTRAMICROSCOPICSILICOVOLCANOCONIOSIS" on the board and had the students try to figure out what the word meant. After the students made guesses about the possible meaning, the teacher showed the students how to take an unknown word apart to recognize prefixes, suffixes, and root words to gain the meaning on the entire word. After that demonstration the teacher put the words "antidisestablishmentarianism" and "malfaction" on the board for the students to figure out. The students were able to use their new found skills of word dissection and the majority of the students were able to reasonably figure out the meanings of the new words.

During week seven the teacher instructed students to bring two pencils with clean functioning erasers to the test site. Students were informed that pencils and erasers would not be available on the days of standardized testing. During this week students were informed about the importance of eating a balanced breakfast and getting a good night's sleep before taking the standardized tests. Furthermore, students would not be allowed to leave the test site to retrieve forgotten equipment. In the eighth week it was explained to students that their ability to concentrate is approximately equal to their age. Armed with that information the students practiced stretches demonstrated by the teacher. These stretches would be legal in a standardized test situation.

During week nine of the action plan "Mozart for the Mind" was played before a test was administered, and a mint was given to the students during the test. The purpose of the music was to relax and stimulate the students' minds, and the purpose of the mint was to refresh their thinking processes. Tracking instruction was given in the tenth week.

This instruction had dual purposes. It could be used either to help in reading questions line by line or question by question, or to keep answers marked on the right line on the Scantron answer sheet.

Following directions was taught during the eleventh week. A test was given to the students with no explanation other than to read it and follow the directions. (See Appendix C.) If the students read the directions there was very little they would have to do on the test, however if they did not read the directions, it was impossible to complete the simple tasks in the five minutes allotted. After the completion of the test, the teacher explained the importance of reading the directions carefully and completely before beginning a test.

In week twelve, students were given a test composed of only negative questions. All questions were written with "except" or "not" (See Appendix D.) This made students aware of and gave them practice in working with questions written in a negative format. This prepared them for standardized tests that use such a format.

In the thirteenth week the teacher observed students taking a Scantron test. The teacher recorded erasures, preparedness, and tracking. Motivation was the focus for week fourteen. The teacher challenged the students to do their best when taking the PSAE and ACT tests in April. The targeted high school was informed that they had been put on Academic Warning by the state due to low standardized test scores. The teacher discussed the effect of this report on the community and the school and challenged students to improve their scores in an attempt to remove the school from the state warning list.

During the fifteenth week, the teacher emphasized personal reasons for student achievement. The students were reminded that standardized tests would help to determine their academic futures. College admission is primarily based on ACT test scores. Students were told that this year, for the first time, the PSAE scores would be put on their transcripts; and the teacher reminded students that colleges and future employers could see their transcripts. In the sixteenth week all strategies were reviewed and the teacher made a final observation of erasures, preparedness, and tracking during the posttest.

Presentation and Analysis of Results

In order to assess the effects of teaching test-taking strategies on student achievement, a weekly activity was conducted throughout the intervention. The action plan involved sixteen weeks of teaching test-taking strategies that was based on the research that was conducted. These activities began with a pretest and a teacher observation checklist and concluded with the posttest and final observation checklist.

During the intervening weeks the teacher and the students discussed the role of tests in their futures and how these tests would affect their goals. Students responded with interest to the discussions regarding their futures and indicated an interest in doing well on the tests.

The intervention appears to have had a positive effect on standardized test scores. The research showed an increase in achievement as a result of the action plan. However, inconsistencies were found in the teacher observation checklists. In retrospect the teacher researcher realized that providing equipment to unprepared students did not teach them the responsibility needed at the time of the posttest. Figure 4 demonstrates this inconsistency by showing a decrease in student preparedness from pretest to posttest.

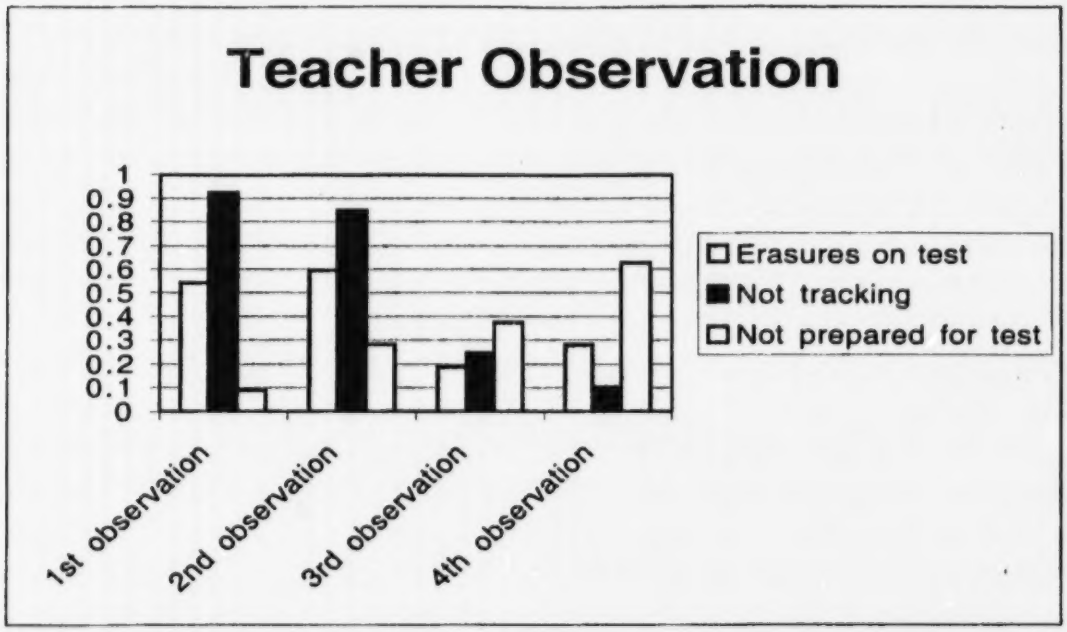

Figure 4. Frequency of targeted test strategies not used during tests given in the classroom.

The teacher researcher, in an effort to make students aware of erasure smudges on the Scantron answer sheet, instructed the students to circle all erasures. Upon scoring, the teacher researcher rechecked the circled answers manually. After returning the tests to the students, the errors of improper erasing became apparent to students. As shown in Figure 4, erasures on the Scantron sheet decreased from pretest to the posttest. It was found on the pretest that 54 % of the tested students made erasures on their Scantron sheets that would have affected their answers. The implementation of the action plan may have helped to decrease student erasure errors to 28 % on the posttest.

Of particular interest is the fact that on the pretest less than 8 % of the students tracked. In each successive observation the number of students tracking increased. In the final observation nearly 90 % of the students were tracking.

The third item on the checklist, student preparedness, presented the most unexpected results. Student preparedness went from 91 % prepared for the pretest to 37 % prepared for the posttest. The teacher observed that the students had become enabled due to the strategy of handing out needed equipment, such as pencils and good erasers , before each test. Providing these items for the students when needed gave them the excuse to not come prepared on their own. If pencils and erasers were provided by the teacher, this would not need to be included on future teacher observation checklists.

Of particular note is a this increase in the pretest and posttest scores. The mean score on the posttest was 40% as compared to the mean score on the pretest which was 50%. The median increased from 12 to 14 correct answers on 29 test items. This score was a 7 % increase on the posttest. (See Table 2.)

Table 2

Pretest and Posttest Scores

	Pretest	Posttest
Range	4-22	6-26
Mean	44	51
Median	12	13

n=29

Conclusions and Recommendations

Based on the presentation and analysis of the data on test taking strategies, the students' showed an improvement on pretest and posttest scores and on tracking. The observation checklist was a useful tool; however the strategies involving erasures and unpreparedness for tests did not have much impact on the students' scores because the students received no consequences for failure to change their habits.

This research indicated that test scores might be raised by improving test-taking strategies. The strategy that the researchers found to be most beneficial to raising test scores was tracking. Many students transferred this strategy to their regular classroom work. One student in particular improved her test scores from 37 % before learning to track to 70 % after learning to track. This student commented that learning to track had helped her in all her subject areas.

The researchers concluded that test taking strategies can be taught. Through the implementation of the action plan students increased their overall awareness of their approaches to testing. In the area of erasures students came to depend on the teacher to help them. Students told the teacher when they erased and the teacher circled the erasures in red and corrected those questions. This strategy helped students become aware of their erasures.

However, when teaching the strategy of being prepared for the tests, students relied on the teacher to provide the equipment that they needed. Failure to internalize the importance of this strategy was shown by a consistent increase in the number of students unprepared for the tests.

The researchers strongly recommended that future studies are needed to develop more appropriate checklist items. The researchers also suggest the incorporation of consequences for checklist items. And finally, the researchers suggest that the implementation of teaching test-taking strategies be taught closer to the scheduled date of standardized tests.

With good teaching and the proper approach to tests, students' scores may increase. Teachers need to be educated in strategies they can share with students to raise

their scores. The research showed that with some effort an increase of test scores could be achieved.

"We throw all our attention on the utterly idle question whether A has done as well as B, when the only question is whether A has done as well as he could."

William Graham Sumner

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APPENDIXES

Appendix A

Teacher Survey

To answer the first 5 questions, mark the scale below each question.
1 is strongly agree and 5 is strongly disagree.

1. Teaching test-taking strategies is important.

1----------2----------3----------4----------5

2. Class time is well spent teaching test-taking strategies.

1----------2----------3----------4----------5

3. Strategies should be taught within a week of the test date.

1----------2----------3----------4----------5

4. Classroom environment affects the test scores.

1----------2----------3----------4----------5

Which of the following do you use to prepare your students for a standardized test? Circle the best answer.

1. I teach the proper way to fill in a bubble on the answer sheet.

Yes No

2. I prepare students to track answers from the test to the answer sheet.

Yes No

3. I make students aware of erasure problems.

Yes No

4. I model a stretch that is allowed while taking the test.

Yes No

5. I remind students to eat a nutritious breakfast before taking the test.

Yes No

6. I advise students to get a good night's sleep.

Yes No

7. I offer a sip of water or a piece of hard candy during testing.

Yes No

Appendix B

Observation Checklist

Put a tally mark by each behavior noticed from student tests. No student should be marked more than one time in each observation.

Erasures on Test –

Not tracking questions to answers –

Not prepared for test -

Appendix C

Directions Test

DIRECTIONS: ***You will have 5 minutes to complete this test. Do not abbreviate unless directed to do so. Carefully read all the questions before doing anything. In order to ensure the accuracy of this exam, you can not use more than the allotted time of 5 minutes.***

1. Write today's date (month, day, year) in the top right hand corner of your answer paper.
2. Write your name (last name first) in the top, center of your answer paper.
3. Write the answer to the following multiplication problem directly underneath the date on your answer sheet: 6 X 5 = ?
4. Go back and number your first 3 answers. (It will help you to number all future answers.)
5. Write the name of the month that begins with the letter "D" in the top left hand corner.
6. Add 15 to the answer to question #3 and write the total directly underneath your answer for #3.
7. In the lower left hand corner of your answer sheet, write the names of your favorite singer and group.
8. Just above your answer to question #5, write "This test is very easy."
9. In the lower right hand corner of your answer sheet, draw a rectangle and inside the rectangle, draw a five pointed star. (The size is not important.)
10. Write your birthday (month, day, year) below your name in question #1.
11. Directly above your answer to question #7, draw a row of three small circles. (Size in not important.)
12. Write the name of the first president of the U.S. on the back of your test paper anywhere you choose. If you don't know who it was, write your own name.
13. Write the name of any country that begins with the letter "I" directly underneath your answer to question #2.
14. Write the capital of the country in #13 to the right of the country. If you don't know, put any capital letter followed by a period.
15. Take the number of dwarfs in the Snow White story and add it to the number of bears in the Goldilocks story. Divide by 2. Write this number in the approximate center of your answer sheet.
16. Think of a number between 1 and 50. Double that number. Add 20. Add 6. Subtract 17. Subtract 9. Divide by 2. Write this number on your answer sheet directly under your answer to #11.
17. The first president of the U.S. was George Washington. He was president from 1789 until 1797. If the total of the two dates is less than 5000, circle the country that begins with the letter "I" (answer #13).
18. Write the name of the state that is east of St. Louis, Missouri, below the answer to #13.
19. Write the name of the current president of the U.S. above your answer to #9.
20. Now that you have carefully read all the questions so far, and you have not carried out any of the actual work, skip to #2 and only complete #2. Put your pencil down and wait for time to be called.

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Appendix D

"Not" Test

U.S. HISTORY TEST—CHAPTERS 16 & 17

1. Which was NOT true of education in the late 1800's? A) there was no compulsory education B) immigrants were 'Americanized' by public schools C) African Americans, Mexican Americans, and Asian Americans attended segregated schools D) Booker T. Washington established Tuskegee University

2. In the late 1800's, saloons were gathering places for all EXCEPT: A) men of the local ethnic group B) political machines C) women of various ethnic groups D) men from the neighborhood

3. A trolley park was NOT A) an amusement park B) located at the end of a trolley line C) a way workers could enjoy their leisure time D) a song and dance show designed for the whole family

4. A sport NOT acceptable for women in the late 1800's was: A) bicycling B) ice skating C) baseball D) tennis E) all the above

5. Vaudeville was all EXCEPT: A) family entertainment B) offensive jokes C) singing D) dancing

6. Minstrel shows were NOT: A) performed by African Americans B) performed by European Americans made up to look black C) singing and dancing D) exaggerated imitations of a minority/ethnic group

7. Ragtime did NOT originate: A) in New Orleans B) in St. Louis C) with Scott Joplin

8. Jazz was all EXCEPT: A) a musical style B) from New Orleans C) from St. Louis

9. Yellow journalism was NOT: A) newspapers printed on yellow paper B) a competition between Hearst and Pulitzer C) designed to sell newspapers D) 'sensational' news coverage E) all of the above

10. Which sections were NOT available in newspapers in the early 1900's? A) sports B) women's page C) comics D) none of the above E) all of the above

11. Victorianism was all EXCEPT: A) moral ideals B) good manners C) strict code of behavior between the sexes C) specific behavior for sporting events D) named for Queen Victoria of England

12. All were voting restrictions EXCEPT: A) poll taxes B) literacy tests C) grandfather clause D) none of the above

13. In 1900, Jim Crow laws did NOT include: A) separate schools for blacks B) separate restaurants for blacks C) separate airports for blacks D) separate restrooms for blacks

14. Plessy v. Ferguson did NOT: A) support separate but equal schools B) constitute a U.S. Supreme Court decision C) segregate the races D) support separate public facilities E) support integration

15. The KKK did NOT: A) want to separate races B) lynch African Americans C) promote integration D) intend to instill fear in African Americans

16. All the following were early 1900 African American rights organizations EXCEPT: A) SCLC B) NAACP C) National Urban League D) National Association for the Advancement of Colored People

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17. Which was NOT true of women in the late 1800's? A) society believed they belonged at home B) few worked outside the home C) they could vote in national elections D) they were loyal volunteers

18. All of the following reflect the Gilded Age EXCEPT: A) Mark Twain named it B) it 'looked' rich, but was really poor at the core C) government was corrupt D) business was not corrupt

19. Laissez faire did NOT encourage: A) government regulation of business B) immigration laws C) the Chinese Exclusion Act D) women's suffrage

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